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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,408	07/25/2001	Kenji Inage	110199	4088

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EXAMINER	
MILLER, BRIAN E	
ART UNIT	**PAPER NUMBER**
2652	

DATE MAILED: 08/26/2004 15 and 16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/911,408	INAGE ET AL.	
	Examiner	Art Unit	
	Brian E. Miller	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5,10,15 and 20-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5,10,15 and 20-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims 5, 10, 15, 20-28 are now pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 5, 10, 15, 20-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al (US 6,587,315). As per claims 5 & 15, Aoki et al discloses an MR device, as shown in at least FIG. 1, including: a MR element 16 which includes a multilayer of elements 10-15, having two surfaces that face toward opposite directions and two side portions that connect the two surfaces to each other; two bias field applying layers 17 that are located adjacent to the side portions of the MR element and apply a bias magnetic field (see col. 17, lines 11-21); two electrode layers 18 that feed a current used for signal detection to the MR element, each of the electrode layers adjacent to one of the surfaces of each of the bias field applying layers; the two bias field applying layers are located off one of the surfaces of the MR element (as per claims 22 & 26); both of the two electrode layers overlap the one of the surfaces of the MR element; (as per claims 21 & 25) wherein the length of the region of overlap T3 is greater than zero and

smaller than 0.15um, e.g., 0.05*2= 0.10 (see col. 18, lines 30-41) which follows that the total overlap is greater than zero and smaller than 0.30 um.

As per claims 10, 20, 23-24, 27-28, the "method" as claimed is encompassed by the structure of the product as described, supra.

Although Aoki et al discloses a space between the electrodes, e.g., T2, Aoki et al remains silent as to a specific dimension. As Aoki et al discloses some 24 embodiments, having various spacing ratios with respect to the overlap, and as the electrode spacing is in direct relationship with the track width of the MR head, it would have been considered obvious to one having ordinary skill in the art at the time the invention was made to have provided this dimension through at least routine engineering experimentation and optimization. As was readily apparent to a skilled artisan, a common goal in the art was to increase storage capacity and one way to do this was to decrease track width. As the electrode spacing is in direct correlation to the track width of the MR sensor, it would reasonably follow that decreasing the electrode spacing would result in decreased track width and therefore increased storage capacity. It would have been considered that optimizing electrode spacing, e.g., decreasing, and therefore the claimed spacing, i.e., "greater than zero and equal to or smaller than approximately 0.6 um", would have been encompassed by Aoki et al and the knowledge of a skilled artisan.

Moreover, absent a showing of criticality, i.e., unobvious or unexpected results, the relationships set forth in these claims are considered to be within the level of ordinary skill in the art. The law is replete with cases in which the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range(s); see *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions; see *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 5, 10, 15, 20-28 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 3, 6, 9, 12-16 of copending Application No. 09/911,407. Although the conflicting claims are not identical, they are not patentably distinct from each other. Commonly claimed subject matter includes: a magnetoresistive element having two surfaces that face toward opposite directions and two side

portions that connect the two surfaces to each other; two bias field applying layers that are located adjacent to the side portions of the MR element and apply a bias magnetic field to the MR element; two electrode layers that feed a current used for signal detection to the MR element, each of the electrode layers being adjacent to one of the surfaces of each of the bias field applying layers; at least one of the electrode layers overlaps one of the surfaces of the MR element, a total length of regions of the two electrode layers that are laid over the one of the surfaces of the MR element is smaller than 0.3um and a space between the two electrode layers is equal to or smaller than approximately 0.6um.

The recitation of the individual layers that make up the MR sensor (as claimed in '407) does not constitute patentably distinct subject matter, since the layer configuration would be considered conventional and well known in this art, and providing such to the instant application claims would have been obvious. The motivation would have been: the layer configuration was known to provide high resistance changes in the MR element, which is the basic premise for GMR technology.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

6. Applicant's arguments filed 5/25/04 have been fully considered but they are moot in view of the new grounds of rejection. The rejection was changed in order to be consistent with the rejection(s) set forth in the co-pending application (09/911,407), e.g., using Aoki et al.

A... The newly presented provisional obviousness double patenting rejection is set forth because, the applications, as now amended, are clearly directed to non-patentably distinct subject matter, as evidenced not only by the claims, but the arguments in both applications.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure including US Patent to Ishikawa et al (6,243,288) is cited to show an electrode spacing less than 0.6 um.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (703) 308-2850. The examiner can normally be reached on M-TH 7:15am-4:45pm (and every other friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian E. Miller
Primary Examiner
Art Unit 2652

Bem
August 2, 2004